

Management of Tuberculosis Training for District TB Coordinators

A: Introduction



World Health
Organization



US Centers for Disease Control and Prevention

K N C V



TUBERCULOSIS FOUNDATION



This training material has been prepared based on the WHO document: *Treatment of tuberculosis: guidelines for national programmes*, 3rd ed. 2003 (WHO/CDS/TB/2003.313) for use in tuberculosis control programmes where WHO recommendations or compatible national recommendations are implemented.

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**Management of Tuberculosis
Training for District TB Coordinators**

A

INTRODUCTION

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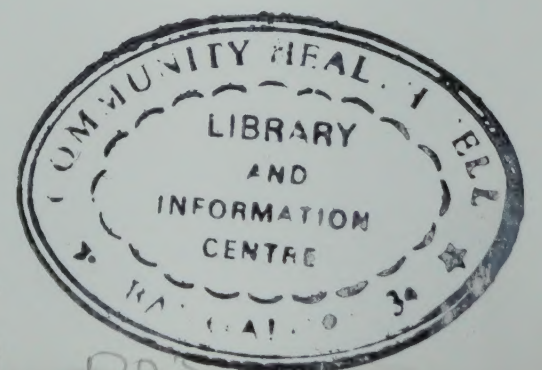
Management of Tuberculosis Training for District TB Coordinators

This set of training modules has been prepared by the Stop TB Department, World Health Organization, Geneva. The project was coordinated by Karin Bergström. Malgosia Grzemska and Fabio Luelmo were the main technical advisers. The modules were designed and developed by Florence C. Johnson and Patricia Whitesell Shirey of ACT International, Atlanta, Georgia, USA.

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Introduction

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Introduction

Importance of tuberculosis as a public health problem

The World Health Organization (WHO) declared tuberculosis (TB) a global emergency in 1993 in recognition of the growing importance of TB as a public health problem. About one third of the world's population is infected with *Mycobacterium tuberculosis*. Worldwide in 2002, there were about 8.8 million new cases of TB disease with 1.8 million deaths. *M. tuberculosis* kills more people than any other single infectious disease agent. Deaths from TB account for 25% of all avoidable deaths in developing countries.

Some 95% of TB cases and 98% of TB deaths occur in developing countries. Of cases in developing countries, 75% are in the economically productive age group (15–50 years old).

Once infected with *M. tuberculosis*, a person stays infected for life and may develop symptoms of TB disease at any time. However, among infected persons without human immunodeficiency virus (HIV), only 1 in 10 (10%) will develop TB; about 90% will remain healthy. The most important trigger for TB disease is weakening of the immune system. In this course, the terms “TB patients” and “TB cases” refer to patients in whom TB disease has been diagnosed.

Without treatment, 50% of patients with pulmonary TB (and with no HIV infection) will die within 5 years, and 25% will remain sick with chronic, infectious TB. Another 25% will spontaneously recover and be healthy (because of strong immune defenses) but could become sick again at any time.

Patients with weakened immune systems, such as those with HIV infection, are at greater risk of developing TB disease. Approximately one third of HIV-infected persons worldwide are also infected with *M. tuberculosis*. Of people infected with both HIV and *M. tuberculosis*, 50% will become sick with TB during their lifetime; 10% will become sick each year. Thus, the prevalence of HIV in a community has an important effect on the incidence of TB. TB can be cured in HIV-infected persons, although the chance of relapse or death is higher.

The DOTS strategy

DOTS is the brand name of the internationally recommended strategy for TB control in response to the global TB emergency. DOTS has five key components:¹

- **sustained political commitment** to increase human and financial resources and make TB control a nationwide priority integral to the national health system;
- **access to quality-assured TB sputum microscopy** for case detection among persons presenting with, or found through screening to have, symptoms of TB (most importantly, prolonged cough);

¹ An expanded description of these components is provided in the document titled *An expanded DOTS framework for effective tuberculosis control*. Geneva, World Health Organization, 2002 (WHO/CDS/TB/2002.297).

- **standardized short-course chemotherapy** for all cases of TB under proper case management conditions, including **direct observation of treatment**;
- **uninterrupted supply of quality-assured drugs**;
- **recording and reporting system enabling outcome assessment** of all patients and assessment of overall programme performance.

This course will focus on aspects of the DOTS strategy that are carried out at the **district level** of a country's TB control programme.

Role of the District TB Coordinator

While the work of detecting and treating TB cases occurs at the health facility level, the District TB Coordinator is responsible for many activities that allow the health facilities to do their work, for example, supplying anti-TB drugs, training health workers, and ensuring laboratory support.

The District TB Coordinator is responsible for planning, organizing, implementing, and evaluating activities of a district TB control programme. A district usually serves a population of 100 000 or more. TB control may be the individual's primary responsibility, or TB may be just one of several areas of responsibility for disease control.

Depending on the size of the district and the number of staff available, the District TB Coordinator may be one person or a team of people. If a district is large, one full-time person solely responsible for TB control, or a team approach, may be justified. In a small district, it may be a part-time responsibility to coordinate the TB control programme. For the purposes of this course, the person (or team) responsible for TB control at the district level is called the District TB Coordinator.

The District TB Coordinator is usually a physician or a nurse. He or she works at the district health office and may also have clinical duties at the hospital. The job of District TB Coordinator is primarily administrative and managerial. Although the District TB Coordinator must be thoroughly familiar with clinical guidelines of the national TB control programme, he or she is primarily responsible for enabling and monitoring the implementation of these guidelines, rather than actually treating patients.

The District TB Coordinator usually reports to the District Medical Officer (DMO) and is supervised by the Provincial TB Coordinator. The District TB Coordinator has no direct supervisory authority over health facility staff, but is responsible for overseeing their performance of tasks related to TB case detection and treatment. For example, the District TB Coordinator visits health facilities to observe performance, record cases in a *District TB Register*, make suggestions, solve problems, and provide training and support.

Health facilities providing TB control services in a district may include public or non-public health centres, hospitals, dispensaries, or health posts. **Throughout this course, the term "health facility" is used to include all types of health services that deliver outpatient care.** In most countries TB control is part of general health-care delivery, and TB patients are received along with other types of patients. Improving TB case management is part of improving health care in general.

Purpose of this training course

This course has been designed for District TB Coordinators. It teaches the skills and knowledge needed to plan, supervise, implement, monitor and evaluate the activities of a district TB control programme. The specific learning objectives of the course are listed on pages 5–6 of this module.

This course does **not** teach the skills and knowledge needed to detect and treat cases of pulmonary TB at the health facility level. Those skills and knowledge are taught in another course, titled *Management of Tuberculosis: Training for Health Facility Staff* (WHO/CDS/TB/2003.314), available through WHO. This course for District TB Coordinators is designed to be entirely consistent with the course for health facility staff. In fact, District TB Coordinators may use *Management of Tuberculosis: Training for Health Facility Staff* as a resource for providing training in their districts. (See module D: *Provide Training for TB Control*.)

This course will not teach medical procedures used by clinicians to diagnose TB, manage severe side-effects, treat TB patients who have defaulted, or treat patients with chronic or multidrug-resistant TB (MDR-TB). For information on these procedures, physicians and other clinicians should refer to WHO treatment guidelines and other appropriate references.¹

It is expected that participants in this course will implement the managerial, supervisory, and administrative procedures taught. In order to implement these procedures, District TB Coordinators will need:

- a thorough understanding of the national TB control guidelines,
- microscopy support for examining sputum samples for TB,
- training support from the provincial level,
- a reliable source of anti-TB drugs and related supplies,
- standard TB forms such as the *District TB Register* and *Quarterly Reports* as required by the national TB control programme,
- resources for transportation (e.g. time, vehicle, fuel, per diem) to conduct supervisory visits to health facilities in the district.

TB treatment regimens vary from country to country. Each district should, of course, implement the standard regimens recommended in the national guidelines. The general managerial principles and practices taught in this course are applicable anywhere.

¹ Examples of references include:

Crofton J, Horne N, Miller F. *Clinical tuberculosis*, 2nd ed. London, Macmillan Education Limited, 1999.

Frieden T, ed. *Toman's tuberculosis. Case detection, treatment, and monitoring: questions and answers*, 2nd ed. Geneva, World Health Organization, 2004 (WHO/HTM/TB/2004.334).

Treatment of tuberculosis: guidelines for national programmes, 3rd ed. Geneva, World Health Organization, 2003 (WHO/CDS/TB/2003.313).

Course methods and materials

This course uses a variety of instructional methods, including reading, written exercises, discussions, demonstrations, and observations in a real health facility. Practice, whether in written exercises or discussion, is considered a critical element of instruction. Many of the exercises in this course are related to an imaginary district, called Faba District, for which you will make decisions as though you were the District TB Coordinator.

The complete training course includes the following modules (booklets). Modules C–J are instructional units that contain exercises; the other modules contain support materials such as a glossary, background information needed for exercises, and answer sheets. Depending on the structure of your course, you may have been given some or all of these modules:

- A: Introduction** (*includes a glossary with definitions of terms*)
- B: Faba District**
- C: Conduct Supervisory Visits for TB Control**
- D: Provide Training for TB Control**
- E: Manage Drugs and Supplies for TB Control**
- F: Ensure Laboratory Support for TB Control**
- G: Monitor and Evaluate TB Control**
- H: Advocacy and Collaboration for TB Control**
- I: Develop the District Plan of Action for TB Control**
- J: Field Exercise – Supervisory Visit**
- K: District Tuberculosis Register**
- L: Tuberculosis Laboratory Register**
- M: Answer Sheets**

This course is designed for small groups of participants who are led and assisted by “facilitators” as they work through the course modules. The facilitators are not lecturers as in a traditional classroom. Their role is to answer questions, provide individual feedback on exercises, lead discussions, etc. For the most part, participants work at their own pace through the modules, although in some activities the small group works together.

The modules may be used in several different ways:

- All of the modules may be completed in sequence without interruption, for example, in a 5-day training session.
- Selected modules may be used in a series of short training sessions, for example, one or two modules per month.
- Selected modules may be used in a training session to teach specific needed skills.
- Motivated individuals may work through modules on their own to teach themselves.
- Modules may be used as a reference.

Learning objectives

Each module will provide information and examples and allow you to practise certain skills needed by a District TB Coordinator. Exercises are provided at the end of each module. The skills and information presented in the instructional modules (C–J) will prepare you to do the following tasks:

C: Conduct Supervisory Visits for TB Control

- Make a schedule for supervisory visits to health facilities
- Maintain the *District TB Register*: register patients who were detected recently at the health facility; at later supervisory visits, record their follow-up sputum examination results and finally their treatment outcomes
- Determine whether smear-positive patients are converting by the end of the initial phase, and try to solve any problems with treatment
- Review the *Register of TB Suspects* to identify any problems with case detection
- Assess performance of TB case detection and treatment to identify problems; analyse causes and possible solutions
- Promote the DOTS strategy and the TB control programme at health facilities
- Identify training needs of health workers responsible for TB case detection and treatment
- Write a brief report of a supervisory visit

D: Provide Training for TB Control

- Recognize good training
- Provide training for health facility staff to prepare them to identify TB suspects
- Resolve problems due to lack of skill and knowledge through training

E: Manage Drugs and Supplies for TB Control

- Calculate the quantity of anti-TB drugs to order for the district for a quarter
- Calculate the quantity of sputum containers to order for the district for a quarter
- Calculate quantities of anti-TB drugs to distribute to each health facility for a quarter
- Calculate quantities of forms and registers needed for a year

F: Ensure Laboratory Support for TB Control

- Assess health facilities' access to a TB microscopy unit
- Assess the TB microscopy workload and how it is distributed in the district
- Determine whether there is a need to increase the capacity of the TB laboratory services
- Review the *Tuberculosis Laboratory Register* and verify that all smear-positive cases are registered accurately in the *District TB Register*
- Review the *Tuberculosis Laboratory Register* to identify problems
- Check whether microscopists keep slides for quality assurance, have sufficient equipment, supplies and training

G: Monitor and Evaluate TB Control

- Monitor implementation of the *District Plan of Action for TB Control*
- Complete the *Quarterly Report on TB Case Registration*
- Complete the *Quarterly Report on Sputum Conversion*
- Complete the *Quarterly Report on Treatment Outcomes*
- Understand and apply principles of cohort analysis
- Calculate and analyse five recommended district-level indicators
- Identify causes and solutions of problems identified through monitoring
- Evaluate achievement of annual targets for sputum conversion and expansion of TB control services

H: Advocacy and Collaboration for TB Control

- Promote the DOTS strategy to non-public health facilities, and collaborate with them in TB control efforts
- Promote the DOTS strategy to private physicians, physicians' associations, and medical and nursing associations
- Promote the DOTS strategy and TB control services to community organizations and their leaders
- Collaborate with the HIV programme

I: Develop the District Plan of Action for TB Control

- Assess the extent and quality of current TB control services
- Plan to maintain and improve current TB control services
- Set a sputum conversion target for the coming year
- Determine whether to expand TB control services to more health facilities in the district
- Set a target for expanding TB control services in the district
- Specify activities in a *District TB Plan*

J: Field Exercise – Supervisory Visit

- Complete the *Checklist for Supervisory Visits* while visiting a real health facility
- Complete the chart, *Training Needs for TB Control*, for this health facility
- Analyse a performance problem observed at the health facility

The order of modules in the course has been carefully planned. You may wonder why module I, which teaches how to develop a *District TB Plan*, is presented towards the end of the course. One reason is that it is helpful to learn about the different activities described in earlier modules (supervision, training, managing drugs and supplies, etc.) before being asked to describe them in a plan. Another reason is that monitoring and evaluation provide the basis for a good plan; therefore, the module on monitoring and evaluation needs to precede the module on planning. An example of a *District TB Plan* is also presented early in the course, in module B: *Faba District*.

How to work on a module

You will begin each module by reading it to yourself. When you come to a stop sign, such as the one below, follow the instructions given.



Usually the instructions are to turn to an exercise in the back of the module and complete it. There may be several types of exercises in a module. The following pictures appear before exercises to show the type of work to be done:



This picture of a pencil indicates a written exercise. Write your answers directly in the module.



This picture of faces indicates a group discussion. Some questions are given to help you prepare for the discussion.

If both pictures appear, the exercise is a combination of written work and group discussion.

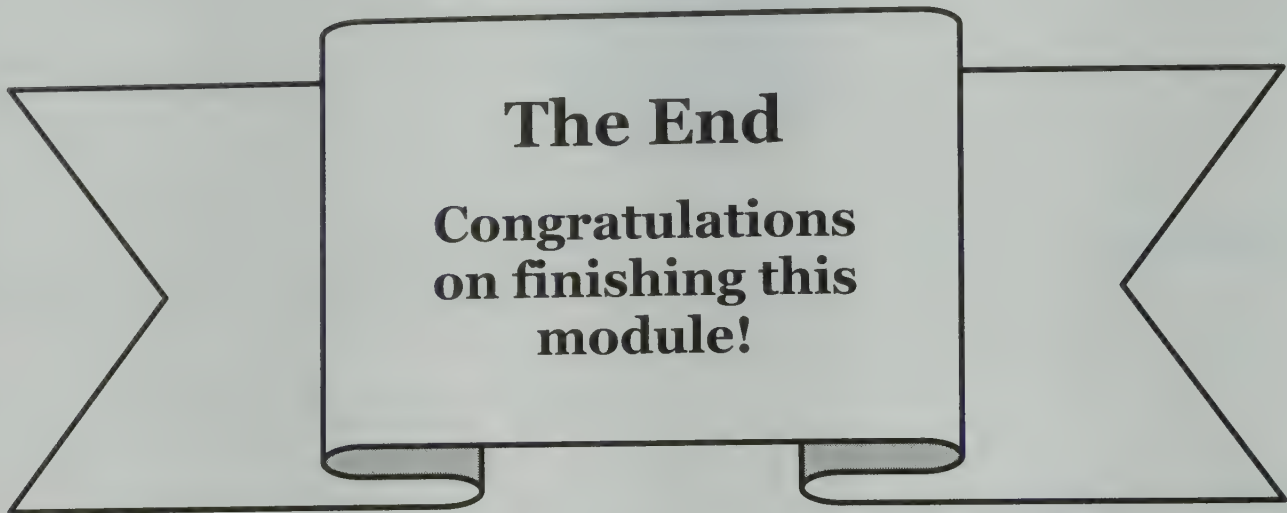
At the end of the exercise you will be directed to obtain individual feedback from a facilitator or to participate in a group discussion led by a facilitator. Then there will be an arrow that tells you to go back and resume reading in the module, for example:



GO BACK to page __, section __,
and continue reading until the next
stop sign.

At the end of each module you will find a summary of important points, followed by self-assessment questions that will allow you to check what you have learned from the module. The answers to self-assessment questions are given in the module so that you can check your own work.

You will know that you have completed a module when you see the following sign:



Annex: TB forms used at health facilities

The forms in this annex are commonly used at the health facility level. These forms are mentioned occasionally in this course and so are presented here for your convenient reference. How to complete and use these forms is explained in detail in the course *Management of Tuberculosis: Training for Health Facility Staff* (WHO/CDS/TB 2003.314).

The purpose of each form is described below:

Request for Sputum Examination – This form is sent with sputum samples to the TB microscopy unit to request sputum examination. The results of microscopy are recorded on the form, which is then sent back to the health facility.

Register of TB Suspects – This register (sometimes called a “cough register”) is used to record the name, age, sex, and address of every TB suspect identified at a health facility. When sputum samples are sent to the microscopy unit, and when results of sputum examinations are received, this information is also entered in the register. If a TB suspect is identified as a case, a *TB Treatment Card* is opened and the date recorded in the register. All subsequent information for that case is recorded on the *TB Treatment Card*.

TB Treatment Card – This card is kept by the health facility (or treatment supporter) for every TB patient. It is used to record contact information, sputum examination results, diagnosis, treatment regimen, and administration of drugs throughout the initial and continuation phases of treatment. At the end of treatment a treatment outcome is recorded.

Tuberculosis Referral/Transfer Form – This form is used to ensure continuation of appropriate treatment when a TB patient moves or is referred to a different health facility. One copy of this form is sent with a copy of the *TB Treatment Card* to the receiving health facility. Another copy is kept at the original health facility, and a third copy is given to the District TB Coordinator.

TB LABORATORY FORM
REQUEST FOR SPUTUM EXAMINATION

Name of health facility _____ Date _____
Name of patient _____ Age _____ Sex: M ☐ F ☐
Complete address _____
District _____

Reason for examination:
Diagnosis ☐ TB Suspect No. _____
OR Follow-up ☐ Patient's District TB No.* _____

Disease site: Pulmonary ☐ Extrapulmonary ☐ (specify) _____

Number of sputum samples sent with this form _____

Date of collection of first sample _____ Signature of specimen collector _____

* Be sure to enter the patient's District TB No. for follow-up of patients on TB treatment.

RESULTS (to be completed by Laboratory)

Lab. Serial No. _____

(a) Visual appearance of sputum:

Mucopurulent ☐ Blood-stained ☐ Saliva ☐

(b) Microscopy:

DATE	SPECIMEN	RESULTS	POSITIVE (GRADING)			
	1		+++ <input type="checkbox"/>	++ <input type="checkbox"/>	+ <input type="checkbox"/>	scanty (1-9) <input type="checkbox"/>
	2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	3		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Date _____ Examined by (Signature) _____

The completed form (with results) should be sent to the health facility and to the District Tuberculosis Unit.

TUBERCULOSIS TREATMENT CARD

Name

Complete address

Sex: M ☐ F ☐ Age

Name and address of community treatment supporter (if applicable)

District TB No.

Health facility

Pulmonary ☐

Extrapulmonary (specify)

Type of patient

New ☐

Relapse ☐

Transfer in ☐

Treatment after failure ☐

Treatment after default ☐

Other (specify)

I. INITIAL PHASE — Prescribed regimen and dosages

Tick frequency: Daily ☐ 3 times/week ☐

Tick category and indicate number of tablets per dose and dosage of S (grams):

CAT I

CAT II

CAT III

CAT IV

New case ☐

Re-treatment ☐

New case ☐

Chronic or MDR-TB ☐

(smear-positive, or seriously ill smear-negative, or EP)

(smear-negative or EP)

HR Z E

HR Z E S

HR Z E

HR: isoniazid and rifampicin Z: pyrazinamide E: ethambutol S: streptomycin

Tick appropriate box after the drugs have been administered

DAY MONTH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Number doses this month	Total number doses given	DATE	DOSES

12

Please turn over for continuation phase

TUBERCULOSIS REFERRAL/TRANSFER FORM

(Complete top part in triplicate)

Tick and comment to indicate the reason for this referral or transfer:

☐ Referral to register and begin TB treatment

☐ Referral for _____

☐ Transfer (registered patient is moving)

Name/address of referring/transferring facility _____

Name/address of facility to which patient is referred/transfered _____

Name of patient _____ Age _____ Sex: M ☐ F ☐

Address (if moving, future address) _____

Name and address of contact person for patient _____

Diagnosis* _____

District TB No* _____ Date treatment started* _____

Category of treatment:*
☐ CAT I New case, smear-positive
☐ CAT II Re-treatment
☐ CAT III New case, smear-negative or extrapulmonary
☐ CAT IV Chronic or MDR-TB

Drugs patient is receiving _____

Remarks (e.g. side-effects observed) _____

Signature _____ Position _____ Date of referral/transfer _____

**Complete if known. If this is a referral for diagnosis, these items may be unknown.*

For use by facility to which patient has been referred or transferred:

Name of facility _____

District _____ Date _____

Name of patient _____ District TB No. _____

The above patient reported at this facility on _____ (date)

Signature _____ Position _____

Send this part back to referring/transferring facility as soon as patient has reported.

Glossary

The definitions provided here refer to the use of terms in the content of this course and are not necessarily valid in other contexts.

acid-fast bacilli

(AFB)rod-shaped bacteria that hold stain colour even after washing with acid. Tubercle bacilli are acid-fast bacilli.

adverse reactionundesirable side-effect of a drug.

advocacywinning the support of key constituencies in order to influence policies and spending, and bring about social change. As used in this course, advocacy involves promoting and gaining support for the DOTS strategy and the TB control programme. Gaining support includes seeking political commitment and resources.

AIDSacquired immunodeficiency syndrome.

antiretroviral therapy

(ART)treatment for HIV with a combination of drugs to improve the quality and duration of life for people living with HIV/AIDS.

BCGbacille Calmette–Guérin, vaccine against tuberculosis that reduces risk of disease by 50–80% when given before infection.

blister packa special package in which tablets and/or capsules are sealed between a plastic layer and a paper or foil layer. Usually tablets/capsules for a certain time period (such as a day or a week) are sealed together in one package with directions for taking them printed on the paper or foil back. The tablets or capsules can be pushed out of the package one at a time, as needed.

case of tuberculosisa patient in whom tuberculosis has been bacteriologically confirmed or diagnosed by a clinician.

checking questiona question asked after giving instruction, intended to check the learner's understanding, so that more information can be given if needed.

chronic casea patient who is sputum-positive at the end of a re-treatment regimen.

cohorta group of individuals considered together for the purposes of reporting, monitoring, or evaluation. As used in this course, a cohort is a group of TB cases who were registered in the *District TB Register* during the same quarter.

collaborationworking together towards a common purpose.

compliancefollowing a rule or procedure as directed. For example, for a TB patient, compliance means taking anti-TB drugs as scheduled.

contactsee *household contact*.

continuation phasethe phase of TB treatment after the initial phase. The continuation phase usually lasts 4–6 months, during which the TB patient takes fewer drugs either daily or intermittently. The continuation-phase regimen is intended to eliminate remaining tubercle bacilli and prevent relapse.

conversionchanging from sputum smear-positive to sputum smear-negative. Sputum conversion is the best indicator that initial-phase TB treatment has been effective.

conversion ratethe proportion of new sputum smear-positive cases that are shown to be sputum smear-negative after 2 or 3 months of treatment.

convert.....to change from sputum smear-positive to sputum smear-negative.

culturea method of diagnosis involving growing bacteria in a special medium conducive to their growth.

cure (treatment outcome)....a sputum smear-positive patient who is sputum smear-negative in the last month of treatment and on at least one previous occasion.

daily treatmentas used in this course, treatment that is taken every day, or 6 days per week with a specific day off.

defaultto stop TB treatment for 2 consecutive months or more.

default (treatment outcome)a patient whose treatment was interrupted for 2 consecutive months or more.

denominatorin a fraction, the number below the line.

diagnostic sputum smear examinationsputum smear examination done by microscope to diagnose pulmonary TB.

died (treatment outcome)a patient who dies for any reason during the course of treatment.

directly observed treatment.....treatment observed by a health worker or a community TB treatment supporter. The health worker or community TB treatment supporter actually watches the TB patient swallow the drugs at every time that a dose is scheduled.

district storeroom	site of storage of drugs and other supplies at the district level. The district storeroom receives supplies from the next higher level (such as the regional warehouse) and provides supplies for health facilities in the district.
DMO	district medical officer, the coordinator of public health activities in the district.
DOTS	the internationally recommended strategy for TB control.
drug kit	a pre-packaged box or bag that contains all the anti-TB drugs for an entire treatment regimen for one TB patient.
drug presentation	the form in which a drug is made and its strength. For example, one presentation of HR is a tablet containing H 100 mg and R 150 mg. One drug presentation made for children is a tablet containing H 100 mg.
drug resistance	adaptation of microorganisms so that they are not killed by a particular drug concentration that used to be effective.
evaluate	to review a programme's efforts and results at the end of a designated time period (such as a year), compare what was achieved with what was planned or expected, assess the current extent and quality of services, and identify the causes of any problems as well as reasons for success.
expired	(in reference to a drug) past the date at which safety and effectiveness of the drug can be assured. Expired drugs may be unsafe or ineffective and should be destroyed or returned to the district level storeroom, or higher levels as appropriate.
expiry date	the date on which a drug expires, or becomes possibly less safe and effective.
extrapulmonary TB	tuberculosis affecting organs other than the lungs, for example, lymph nodes, bones and joints, genitourinary tract, meninges, pleura, or intestines.
fixed-dose combination (FDC)	two or more drugs combined in one tablet, in specific dosages, to facilitate correct drug intake.
follow-up sputum smear examination	sputum smear examination done by microscope to assess progress of TB treatment or prove cure (also called "control").
genitourinary tract	genital and urinary organs.
haemoptysis	coughing up blood.

HIV	human immunodeficiency virus.
household contact	someone who lives in the same dwelling with the TB patient (sleeps and eats at least one meal there per day).
incidence	the number of new cases of a disease occurring in a defined population during a given time period.
indicator	a measurable number, proportion, percentage, ratio, or rate that suggests, or indicates, the extent of a programme's achievement or the level of some condition among the population.
initial phase	the first phase of TB treatment, usually lasting 2–3 months, during which the TB patient takes an intensive drug regimen (4–5 drugs daily). During this phase, sputum conversion usually occurs and clinical symptoms improve.
intermittently	as used in this course, 3 times per week. When treatment is taken intermittently, WHO recommends 3 times a week. Some countries use 2 times a week.
interruption	missing scheduled treatment for any length of time. If treatment is interrupted, health workers should make home visits to find the patient. If interruption lasts 2 months or longer, the patient is considered to have defaulted.
job aid	a reference such as a checklist, chart, or poster that is used on the job to help a person do work correctly.
kit	see <i>drug kit</i> .
MDR-TB	multidrug-resistant TB. Active tuberculosis with bacilli resistant to at least rifampicin and isoniazid.
meninges	the membranes that envelope the brain and spinal cord.
microscopy	examination by means of a microscope.
microscopy unit	as used in this course, a TB microscopy unit is a site with at least one microscope suitable for doing sputum smear examination for TB and at least one trained microscopist.
monitor	to watch closely or check on a regular basis.
<i>Mycobacterium tuberculosis</i>	tubercle bacillus, that is, the bacillus that causes tuberculosis.
new (type of patient)	a patient who has never had treatment for TB or who has taken anti-TB drugs for less than 1 month.

NGO	nongovernmental organization.
non-public health facilities	all health-care facilities that are not managed by the government (e.g. private clinics), or that are managed by the government but not open to all of the public (e.g. prison or military health facilities).
numerator	in a fraction, the number above the line.
on-the-job training	training conducted in the workplace using real examples and carefully supervised practice in real work situations.
other (type of patient)	all cases that do not meet the definitions of new, relapse, treatment after failure, treatment after default, or transfer in.
percentage	a part of a whole expressed in hundredths. If 50% of a population is female, it means that 50 out of 100 people are female. The following examples show different ways of expressing the same meaning: $50\% = 0.50 = 50/100$; $4\% = 0.04 = 4/100$.
performance-based training	training that teaches skills and knowledge needed to perform specific tasks of a job.
performance problem	a task that is performed incorrectly or not at all. A performance problem exists when there is difference between what should be done and what is actually done. A performance problem may be stated in terms of who is not doing what .
pleura	the membrane covering the lung and the wall of the chest cavity containing the lungs.
PLWHA	people living with HIV/AIDS.
positivity, positivity rate	the proportion of TB suspects tested who were sputum smear-positive.
prevalence	the number of all cases of a disease existing in a defined population at a specific point in time or during a given time period.
proportion	the relationship of a part to a whole, often written as a decimal fraction or percentage (for example, 0.17 or 17%).
public health facilities	health care facilities that are managed by the government and open to all of the public.
pulmonary TB	tuberculosis affecting the lungs.

**pulmonary tuberculosis–
sputum smear-positive
(PTB+)**.....

1. two or more initial sputum smear examinations positive for acid-fast bacilli (AFB), or
2. one sputum smear examination positive for AFB plus radiographic abnormalities consistent with active pulmonary tuberculosis as determined by a clinician, or
3. one sputum smear examination positive for AFB plus sputum culture positive for *Mycobacterium tuberculosis*.

**pulmonary tuberculosis–
sputum smear-negative
(PTB–)**.....

a case of tuberculosis that does not meet the above definition for smear-positive tuberculosis.

radiographic

abnormalities.....abnormalities that appear in X-rays.

regional warehousesite of storage of drugs and other supplies at the regional level. The regional warehouse receives supplies from the next higher level (such as the national warehouse) and sends supplies to storage sites at the next lower level of the public health system (the district storeroom).

quartera 3-month period of the year. For example, the 1st quarter of the year includes January, February, and March.

quarterlyonce during every 3-month period. Monitoring of district level indicators is done quarterly.

rate.....a measure of the frequency of some event in a defined population during a given time period, expressed, for example, as 1.5 per 100 000. Rates may also be expressed as decimal fractions (for example, 0.25) or as percentages (for example, 25%).

ratiothe relationship of one number to another, sometimes expressed with a colon between the numbers. For example, the ratio of TB suspects tested to adult outpatients could be expressed as 3:100. This ratio could also be expressed as 0.3 or 3%. In a ratio, the individuals to the left of the colon are not necessarily part of the group to the right of the colon. For example, the ratio of teachers to students at a school might be 1:15.

referralsending a patient to another health facility or to a clinician. TB patients may be referred for diagnosis, initiation of treatment, or special care/hospitalization for complications, toxicity, etc.

refresher training.....training intended to review skills or knowledge previously learned, but which have deteriorated over time.

- regimen**a plan of treatment specifying which drugs are to be given and the dose, frequency, and duration of treatment with each drug.
- relapse (type of patient)**a patient previously treated for TB who has been declared cured or treatment completed, and is diagnosed with bacteriologically positive (smear or culture) tuberculosis.
- reserve stock**extra stock kept to ensure adequate supplies even if there is increased use or a delay in drug delivery. Reserve stock is kept at each health facility, district storeroom, regional warehouse, and national warehouse.
- safe injection**an injection that does not harm the recipient, does not expose the provider to any avoidable risk, and does not result in any waste that is dangerous for other people.
- safe injection practices**practices that prevent the spread of infection by injection, such as use of a sterile needle and syringe for every injection. If disposable syringes and needles are used, safe injection practices include correct disposal of used needles and syringes. If reusable needles and syringes are used, they must be correctly sterilized.
- scanty**result of examination of a sputum sample when fewer than 10 acid-fast bacilli are found while observing at least 100 microscopy fields. The absolute number of bacilli seen should be reported.
- side-effect**a secondary and usually adverse effect of a treatment or drug.
- specimen**sample, a small amount (e.g. urine, sputum) to be tested.
- sputum**matter ejected from the lungs through the mouth.
- sputum smear microscopy**examination of sputum with a microscope to determine whether acid-fast bacilli are present.
- sputum smear-negative cases**pulmonary TB patients whose sputum does not contain enough tubercle bacilli to be detectable by microscopy. In consolidated data from TB control programmes, these also include cases with no information on smear results (i.e. all non smear-positive cases).
- sputum smear-positive cases**pulmonary TB patients whose sputum contains tubercle bacilli that are detectable by microscopy.



standard regimen (for TB)	drug regimen selected by a country for treatment of a TB patient based on efficacy, cost, prevalence of drug resistance, state of development of the health services, and coverage of the population. The regimen specifies the anti-TB drugs, dosages of each anti-TB drug, frequency of intake, and duration of the regimen for each diagnostic category (that is, treatment category I, II, or III). The standard regimen should be given to all TB patients in the category unless there is a specific reason to change it, such as adverse reaction to one of the drugs.
stock card	a card kept with each drug and drug strength in the storeroom. The stock card is updated whenever drugs are received or dispensed, so that it always shows the actual balance in stock.
target	a specific goal to work towards, expressed as a number, proportion, percentage, or rate. A target should include a date, location (e.g. the district), and measurable level to be achieved.
TB suspect	any person who presents with symptoms or signs suggestive of tuberculosis, in particular, cough of long duration (2 weeks or more).
transfer	as used in this course, to change a TB patient's treatment facility when that patient moves. A patient may transfer to another health facility within the district or to another district (see <i>transfer in</i> below).
transfer in (type of patient)	a patient who has been transferred from another TB register to continue treatment. In the <i>District TB Register</i> , this is a patient transferred from another district to continue treatment. In records kept at the health facility level, a "transfer in" may come from another facility within the district or from outside the district.
transfer out (treatment outcome)	a patient who has been transferred to another recording and reporting unit and for whom the treatment outcome is not known.
treatment after default (type of patient)	a patient who returns to treatment, positive bacteriologically, following interruption of treatment for 2 months or more.
treatment after failure (type of patient)	a patient who is started on a re-treatment regimen after having failed previous treatment.

- treatment completed**
(treatment outcome)a patient who has completed treatment but who does not meet the criteria to be classified as a cure or a failure.
- treatment failure**
(treatment outcome)a patient who is sputum smear-positive at 5 months or later during treatment. Also an initially sputum smear-negative patient who becomes sputum smear-positive at 2 months.
- treatment success**an indicator calculated by adding the number or proportion of patients cured to those who completed treatment.
- treatment supporter**.....a trained and supervised community member who directly observes a TB patient's treatment. When it is not convenient for a patient to visit the health facility during regular hours, a community TB treatment supporter may be selected and trained to directly observe a patient's treatment at a more convenient place and time.
- tubercle bacilli**rod-shaped bacteria that cause tuberculosis (*Mycobacterium tuberculosis*).
- tuberculin test**.....Mantoux test, that is, intradermal injection of 0.1 ml of tuberculin (protein extracted from TB bacilli). The test indicates TB infection but not disease. In an individual infected with TB, a thickening (induration) of the skin can be observed at the injection site in 48–72 hours.
- tuberculosis (TB)**.....a disease caused by the organism *Mycobacterium tuberculosis*. Not everyone infected with *M. tuberculosis* develops symptoms of TB disease, which may include cough, haemoptysis, chest pain, weight loss, and tiredness (in pulmonary TB). In this course, TB refers to TB disease rather than the infection without disease.
- VCT**voluntary counselling and testing for HIV infection.

References

The following documents are referred to in this course:

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TB Advocacy—A Practical Guide. Geneva, World Health Organization, 1999 (WHO/TB/98.239).

Treatment of tuberculosis: guidelines for national programmes, 3rd ed. Geneva, World Health Organization, 2003 (WHO/CDS/TB/2003.313).

Web sites that may be useful to course participants include:

www.who.int/tb/en

www.stoptb.org

www.iuatld.org

